7

COUNTERPARTY CREDIT RISK

IN BRIEF

Counterparty credit risk is the risk of losses stemming from market operations, should a counterparty fail to meet its payment obligations. The future market value of the exposure and the counterparty's credit quality are uncertain and may vary over time as underlying market parameters change.

Counterparty credit risk covers the replacement risk resulting from the default of a counterparty, the CVA (Credit Valuation Adjustment) risk related to the adjustment to the value of the Group portfolio, and the risk over central counterparties (CCP) following the clearing of market transactions. It is also affected by the wrong-way risk.

Counterparty credit risk RWA at end 2022:

€23.8bn

(Counterparty credit risk RWA at end 2021: €27.5bn)

7.1 DETERMINING LIMITS AND MONITORING FRAMEWORK

Counterparty credit risk (CCR) is driven by market transactions. Counterparty credit risk is therefore a multidimensional risk, combining credit and market risks, in the sense that the future value of the exposure to a counterparty and its credit quality are uncertain and variable in time (credit component), whilst also being impacted by changes in market parameters (market component). It can be broken down into the following categories:

- default risk: it corresponds to the replacement risk to which the Societe Generale Group is exposed in the event of a counterparty's failure to comply with its payment obligations. In this case, following the counterparty's default SG must replace this transaction with a new transaction. Potentially, this must be done under stressed market conditions, with reduced liquidity and sometimes even facing a Wrong Way Risk (WWR);
- Credit Valuation Adjustment (CVA) risk: it corresponds to the variability of the value adjustment due to counterparty credit risk, which is the market value of the CCR for derivatives and repos, that is an adjustment to the transaction price factoring in the credit quality of the counterparty. It is measured as the difference between the price of a contract with a risk-free counterparty and the price of the same contract factoring in the counterparty's default risk;
- risk on CCPs : it is related to the default of another clearing member of the central clearing house, which could result in losses for the Group on its contribution to the default fund.

Transactions involving counterparty credit risk include delivered pensions, securities lending and borrowing, and derivative contracts, whether they are dealt with principal activity or on behalf of third parties (agency activities or client clearing) in the context of market activites.

Main principles

Counterparty credit risk is framed through a set of limits that reflect the Group's appetite for risk.

Counterparty credit risk management mainly relies on dedicated first and second lines of defence as described below:

- the first lines of defence (LoD1) notably include the business lines that are subject to counterparty credit risk, the Primary Client Responsibility Unit that is in charge of handling the overall relationship with the client and the group to which it belongs, dedicated teams within the Global Banking and Advisory and the Global Markets Business Units responsible for monitoring and managing the risks within their respective scope of activities;
- the Risk Department acts as a second line of defence (LoD2) through the setup of a counterparty credit risk control system, which is based on standardised risk measures, to ensure the permanent and independent monitoring of counterparty credit risks.

The fundamental principles of limit granting policy are:

- dedicated LoD1 and LoD2 must be independent of each other;
- the Risk Department has a division dedicated to counterparty credit risk management in order to monitor and analyze the overall risks of counterparties whilst taking into account the specificities of counterparties;
- a system of delegated authorities, mainly based on the internal rating of counterparties, confers decision-making powers to LoD1 and LoD2;
- the limits and internal ratings defined for each counterparty are proposed by LoD1 and validated by the dedicated LoD2[(1)]. The limits may be set individually, at the counterparty level, or globally through framing a (sub)set of counterparties (for example: supervision of stress test exposures).

These limits are subject to annual or *ad hoc* reviews depending on he needs and changing market conditions.

A dedicated team within the Risk Department is in charge of production, reporting and controls on risk metrics, namely:

- ensuring the completeness and reliability of the risk calculation by taking into account all the transactions booked by the transaction processing department;
- producing daily certification and risk indicator analysis reports;
- controlling compliance with defined limits, at the frequency of metrics calculation, most often on a daily basis: breaches of limits are reported to Front Office and dedicated LoD2 for remediation actions.

In addition, a specific monitoring and approval process is implemented for the most sensitive counterparties or the most complex categories of financial instruments.

(1) For Hedge Funds and PTG (Proprietary Trading Group) counterparties, the rating proposal is delegated to LOD2.

Comitology

While not a substitute for CORISQ or for the Risk Committee of the Board of Directors (see the section on Risk management governance), the Counterparty Credit Risk Committee (CCRC) closely monitors counterparty credit risk through:

- a global overview on exposure and counterparty credit risk metrics such as the global stress tests, the Potential Future Exposure PFE, etc., as well as focuses on specific activities such as collateralised financing, or agency business;
- dedicated analysis on one or more risks or customer categories or frameworks or in case of identification of emerging risk areas.

This Committee, chaired by the Risk Department on a monthly basis, brings together representatives from the Market Activities and the Global Banking and Advisory Business Units, but also departments that, within the risk management function, are in charge of monitoring counterparty credit risks on market transactions and credit risk. The CCRC also provides an opinion on the changes to the risk frameworks within its authority. The CRCC also identifies key CCR topics that need to be escalated to the management.

Replacement risk

The Group frames the replacement risks by limits that are defined by credit analysts and validated by LoD2 based on the Group's risk appetite.

The limits are defined at the level of each counterparty and then aggregated at the level of each client group, each category of counterparties and finally consolidated at the entire Societe Generale Group portfolio level.

The limits used for managing counterparty credit risk are:

- defined at the counterparty level;
- consolidated across all products types authorised with the counterparty;
- established by maturity buckets to control future exposure using the Potential Future Exposure (PFE) measure also known as CVaR within Societe Generale;
- calibrated according to the credit quality and the nature of the counterparty, the nature/maturity of the financial instruments contemplated (FX transactions, repos transactions, security lending transactions, derivatives, etc.), and the economic understanding, the contractual legal framework agreed and any other risk mitigants.

The Group also considers other measures to monitor replacement risk:

- a multifactor stress test on all counterparties, which allows to holistically quantify the potential loss on market activities following market movements which could trigger a wave of defaults on these counterparties;
- a set of single-factor stress tests to monitor the general wrong-way risk (see section "*Unfavorable correlation risk*").

CVA (Credit Valuation Adjustment) risk

In addition to the replacement risk, the CVA (Credit Valuation Adjustment) measures the adjustment of the value of the Group's derivatives and repos portfolio in order to take into account the credit quality of the counterparties facing the Group (see section *"Credit Valuation Adjustment"*).

Positions taken to hedge the volatility of the CVA (credit, interest rate or equity instruments) are monitored through:

- sensitivity limits;
- stress test limits: scenarios representative of the market risks impacting the CVA (credit spreads, interest rates, exchange rates and equity) are applied to carry out the stress test on CVA.

The different indicators and the stress tests are monitored on the net amount (the sum of the CVA exposure and of their hedges).

Risk on central counterparties

Clearing of transactions is a common market practice for SG, notably in compliance with the EMIR (European Market Infrastructure Regulation) regulations in Europe and the DFA (Dodd-Frank Act) in the United States, which require that the most standardised over-the-counter transactions be compensated *via* clearing houses approved by the authorities and subject to prudential regulation.

As a member of the clearing houses with which it operates, the Group contributes to their risk management framework through deposits into the defaults funds, in addition to margin calls.

The counterparty credit risk stemming from the clearing of derivatives and repos with central counterparties (CCP) is subject to a specific framework on:

- initial margins, both for house and client activities (client clearing);
- the Group's contributions to the CCP default funds (guarantee deposits);
- a stress test defined to capture the impact of a scenario where a major CCP member should default.

See table "EAD and RWA on central counterparties" of section 7.4 *"Quantitative Information"* for more information.

7.2 MITIGATION OF COUNTERPARTY CREDIT RISK ON MARKET TRANSACTIONS

The Group uses various techniques to reduce this risk:

- the signing, in the most extensive way possible, of close-out netting agreements for over-the-counter (OTC) transactions and Securities Financing Transactions (SFT);
- the collateralisation of market operations, either through clearing houses for eligible products (listed products and certain of the more standardised OTC products), or through a bilateral margin call exchange mechanism which covers both current exposure (variation margins) but also future exposure (initial margins).

Close-out netting agreements

Societe Generale's standard policy is to conclude master agreements including provisions for close-out netting.

These provisions allow on the one hand the immediate termination (close out) of all transactions governed by these agreements when one of the parties defaults, and on the other hand the settlement of a net amount corresponding to the total value of the portfolio, after netting of mutual debts and claims. This balance may be the subject of a guarantee or collateralisation. It results in a single net claim owed by or to the counterparty.

In order to reduce the legal risk associated with documentation and to comply with key international standards, the Group documents these agreements under the main international standards as published by national or international professional associations such as International Swaps and Derivatives Association (ISDA), International Capital Market Association (ICMA), International Securities Lending Association (ISLA), French Banking Federation (FBF), etc.

These contracts establish a set of contractual terms generally recognised as standard and give way to the modification or addition of more specific provisions between the parties in the final contract, for example regarding the triggering events. This standardisation reduces implementation times and secures operations. The clauses negotiated by clients outside the bank's standards are approved by the decision-making bodies in charge of the master agreements standards – Normative Committee and/or Arbitration Committee – made up of representatives of the Risk Division, the Business Units, the Legal Division and other decision-making departments of the bank. In accordance with regulatory requirements, the clauses authorising global close-out netting and collateralisation are analysed by the bank's legal departments to ensure that they are enforceable under the legal provisions applicable to clients.

Collateralisation

Most of over-the-counter transactions are collateralised. There are two types of collateral exchanges:

- initial margin (IM) or Independent Amount (IA[1]): an initial amount of collateral aiming at covering potential future exposure, *i.e.* the unfavourable change in the Mark-to-Market of positions in the time period between the last collection of margins and the liquidation of positions following the counterparty default;
- variation margin (VM): collateral collected to cover current exposure arising from Mark-to-Market changes, used as an approximation of the actual loss resulting from the default of one of the counterparties.

All aspects of the margining regime are defined in collateral arrangements, such as credit support annexes (CSA[2]). The main features defined are:

- the scope covered (*i.e.* the nature of transactions allowed);
- the eligible collateral and the applicable haircut: main types of collateral exchanged are cash or high-quality and liquid assets according to the Group's policy, and are subject to a haircut, which is the valuation percentage applicable to each type of collateral, based on liquidity and price volatility of the underlying during both normal and stressed market conditions;
- the timing and frequency of the calculation of the margin call and exchanges, usually daily;
- the margin call thresholds if not under regulatory obligation;
- the Minimum Transfer Amount (MTA).

In addition, specific parameters or optional features can be defined depending on the type of counterparty/transaction, such as an additional guarantee amount (flat-rate increase of the exposure allowing the party making a margin call to be "over-collateralised"), or rating-dependent clauses, typically mutual in nature, where additional collateral is requested in case of a party's rating downgrade.

The Group monitors given and received collateral exchanges. In case of discrepancies between the parties with respect to margin call amounts, dedicated teams from the Operations and the Risk Departments are in charge of analysing the impacted transactions to ensure they are correctly valued and of addressing the issue.

BILATERAL COLLATERAL EXCHANGE

The initial margin, historically very rare except with hedge funds, was generalised by EMIR and DFA regulations which introduced the mandatory use of master agreements and related CSA, prior to or when entering into an uncleared OTC derivatives transactions. It is now mandatory for the Group to exchange IM and VM for non-cleared OTC derivatives transactions with a large number of its counterparties (its financial counterparties and some non-financial counterparties above certain thresholds defined by the regulation, with compliance dates depending on the volume of transactions).

The Regulatory Technical Standards (RTS) on Initial Margin Model Validation (IMMV) under EMIR allows counterparties subject to mandatory bilateral collateral exchange requirements to waive these rules in certain circumstances. The Group has incorporated a waiver application process for intra-group entities into its risk management policies. The eligibility criteria for this waiver are framed and monitored as required by the Delegated Regulation.

(1) IA (Independent Amount) is the same concept as initial margin, but applies to different perimeters (OTC swaps not cleared for IA).
(2) The Credit Support Annex (CSA) is a legal document under ISDA contract that regulates the management of collateral between two counterparties.

CLEARING HOUSES

EMIR and DFA regulations have also required that the most standard over-the-counter derivatives transactions be compensated through clearing houses. The Group thus compensates its own operations (principal activity), but also client clearing activities (agency-type activity), which are subject to systematic margin calls to mitigate counterparty credit risk (customers posting daily variation margins and initial margins to Societe Generale, in order to cover current exposure and future exposure).

OTHER MEASURES

In addition to margin requirements for some counterparties or mandatory clearing for the most standardised derivatives transactions, DFA and EMIR provide for an extensive framework for the regulation and transparency of OTC derivatives markets, such as reporting of OTC derivatives, timely confirmation or trade acknowledgement.

7.3 COUNTERPARTY CREDIT RISK MEASURES

REPLACEMENT RISK

The measure of replacement risk is based on an internal model that determines the Group's exposure profiles. As the value of the exposure to a counterparty is uncertain and variable over time, we estimate the potential future replacement costs over the lifetime of the transactions.

Principles of the model

The future fair value of market transactions with each counterparty is estimated from Monte Carlo models based on a historical analysis of market risk factors.

The principle of the model is to represent the possible future financial markets conditions by simulating the evolutions of the main risk factors to which the institution's portfolio is sensitive. For these simulations, the model uses different diffusion models to account for the characteristics inherent in the risk factors considered and uses a 10-year history for calibration.

The transactions with the various counterparties are then revalued according to these different scenarios at the different future dates until the maturity of the transactions, taking into account the terms and conditions defined in the contractual legal framework agreed and the credit mitigants, notably in terms of netting and collateralisation only to the extent we believe that the credit mitigants provisions are legally valid and enforceable.

The distribution of the counterparty exposures thus obtained allows the calculation of regulatory capital for counterparty credit risk and the economic monitoring of positions.

The Risk Department responsible for Model Risk Management at Group level, assesses the theoretical robustness (review of the design and development quality), the compliance of the implementation, the suitability of the use of the model and continuous monitoring of the relevance of the model over time. This independent review process ends with (i) a report that describes the scope of the review, the tests carried out, the results of the review, the conclusions or recommendations and (ii) review and approval Committees. This model review process gives rise to (i) recurring reports to the Risk Management Department within the framework of various Committees and processes (Group Model Risk Management Committee, Risk Appetite Statement/Risk Appetite Framework, monitoring of recommendations, etc.) and (ii) a yearly report to the Board of Directors (CORISQ).

Regulatory indicator

With respect to the calculation of capital requirements for counterparty credit risk, the ECB, following the Targeted Review of Internal Models, has renewed the approval for using the internal model described above to determine the Effective Expected Positive Exposure (EEPE) indicator.

For products not covered by the internal model as well as for entities in the Societe Generale Group that have not been authorised by the supervisor to use the internal model, the Group uses the market-price valuation method for derivatives[1] and the general financial security-based method for securities financing transactions (SFT[2]).

The effects of compensation agreements and collateralisation are taken into account either by their simulation in the internal model when such credit risk mitigant or guarantees meet regulatory criteria, or by applying the rules as defined in the market-price valuation method or the financial security-based method, by subtracting the value of the collateral.

These exposures are then weighted by rates resulting from the credit quality of the counterparty to compute the Risk Weighted Assets (RWA). These rates can be determined by the standard approach or the advanced approach (IRBA).

As a general rule, when EAD is modelled in EEPE and weighted according to IRB approach, there is no adjustment of the LGD according to the collateral received as it is already taken into account in the EEPE calculation.

The RWA breakdown for each approach is available in the "Analysis of Counterparty Credit Risk Exposure by Approach" table in Section 7.4 *"Quantitative Information"*.

(1) In this method, the EAD (Exposure At Default) relating to the Bank's counterparty credit risk is determined by aggregating the positive market values of all transactions (replacement cost) supplemented by an add-on factor.

(2) Securities Financing Transactions.

Economic indicator

For the economic monitoring of positions, Societe Generale relies mainly on a maximum exposure indicator determined from the Monte Carlo simulation, called internally Credit Value-at-Risk (CVaR) or PFE (Potential Future Exposure). This is the maximum amount of loss that could occur after eliminating 1% of the most adverse occurrences. This indicator is calculated at different future dates, which are then aggregated into segments, each of them being framed by limits.

The Group has also developed a set of stress test scenarios to determine the exposure that would result from changes in the fair value of transactions with all its counterparties in the event of an extreme shock affecting the market parameters.

CREDIT VALUATION ADJUSTMENT

Main Principles

The CVA (Credit Valuation Adjustment) is an adjustment to marked-to-market of the derivatives and repos portfolio to take into account the credit quality of each counterparty facing the Group in the valuation. This adjustment is equivalent to the counterparty credit risk hedging cost usually based on in the Credit Default Swap (CDS) market.

For a specific counterparty, the CVA is determined on the basis of:

- the positive expected exposure to the counterparty, which is the average of the positive hypothetical future exposure values for a transaction, or a group of transactions, weighted by the probability that a default event will occur. It is mainly determined using risk neutral Monte Carlo simulations of risk factors that may affect the valuation of the derivatives transactions. The transactions are revalued through time according to the different scenarios, taking into account the terms and conditions defined in the contractual legal framework agreed, notably in terms of netting and collateralisation (*i.e.* that transactions with appropriate credit mitigants will generate lower expected exposure compared to transactions without credit mitigants);
- the probability of default of the counterparty, which is linked to the level of CDS spreads;
- the amount of losses in the event of default (LGD – Loss Given Default taking into account the recovery rate).

The Group calculates this adjustment for all counterparties which are not subject to a daily margin call or for which collateral only partially covers the exposure.

Capital requirement for CVA Risk

The financial institutions are subject to the calculation of a capital requirement under the CVA, to cover its variation over ten days. The scope of counterparties is reduced to financial counterparties as defined in EMIR (European Market Infrastructure Regulation) or to certain Corporates that may use derivatives beyond certain thresholds and for purposes other than hedging.

The CVA charge is determined by the Group mainly using the advanced method:

- the positive expected exposure to the counterparty is mainly determined using the internal model described in section "*Principles of the model*", which estimates the future exposure profiles to a counterparty, taking into account counterparty credit risk mitigants;
- the VaR and the Stressed VaR on CVA are determined using a similar methodology to the one developed for the calculation of the market VaR (see market risk chapter). This method consists of an "historical" simulation of the change in the CVA due to fluctuations in the credit spreads observed on the counterparties in portfolio, with a confidence interval of 99%. The calculation is made on the credit spreads variation observed, on the one hand, over a one-year rolling period (VaR on CVA), and, on the other hand, over a fixed one-year historical window corresponding to the period of greatest tension in terms of credit spreads (stressed VaR on CVA);
- the capital charge is the sum of two elements: VaR on CVA and Stressed VaR on CVA multiplied by a coefficient set by the regulator, specific to each bank.

The positions not taken into account in the advanced method are subject to a capital charge determined through the standard method by applying a normative weighting factor to the product of the EAD (Exposure At Default) by a maturity calculated according to the rules defined by the CRR (Capital Requirement Regulation); see the "Transactions subject to own funds requirements for CVA risk" table in Section 7.4 *"Quantitative Information"* for the breakdown of CVA-related RWA between advanced and standard methods.

CVA Risk Management

The management of this exposure and of this regulatory capital charge led the Bank to purchase hedging instruments such as Credit Default Swap (CDS) from large credit institutions on certain identified counterparties or on indices composed of identifiable counterparties. In addition to reducing credit risk, it decreases the variability of the CVA and the associated capital amounts resulting from fluctuations in counterparty credit spreads.

The CVA desk (or the Societe Generale Group) also handles instruments for hedging interest rate or foreign exchange risks, which helps to limit the variability of the CVA's share from positive exposure.

UNFAVORABLE CORRELATION RISK (WRONG-WAY RISK)

Wrong-way risk is the risk of the Group's exposure to a counterparty increasing significantly, combined with a simultaneous increase in the probability of the counterparty defaulting.

There are two different cases:

- general wrong-way risk arises when the likelihood of default by counterparties is positively correlated with general market risk factors;
- specific wrong-way risk arises when future exposure to a specific counterparty is positively correlated with the counterparty's probability of default due to the nature of the transaction with the counterparty.

Specific wrong-way risk, in the case of a legal link between the counterparty and the underlying of a transaction concluded with the counterparty, is subject to dedicated regulatory capital requirements, calculated on the perimeter of transactions carrying such risk. Furthermore, for counterparties subject to such a specific risk, the Potential Future Exposure (PFE) is also increased, so that the transactions allowed by the limits in place will be more constrained than in the absence of specific risk.

The general wrong-way risk is controlled *via* a set of stress tests applied to transactions made with a given counterparty, based on scenarios common with the market stress tests. This set-up is based on:

- a quarterly analysis of stress tests on all counterparties (financial institutions, corporates, sovereigns, hedge funds and proprietary trading groups) for principal and agency (client clearing) businesses, allowing to understand the most adverse scenarios related to a joint deterioration in the quality of counterparties and the associated positions;
- a weekly monitoring of dedicated single-factor stress tests for hedge fund counterparties and Proprietary Trading Groups, subject to limits at the counterparty level.

7.4 QUANTITATIVE INFORMATION

TABLE 72: COUNTERPARTY CREDIT RISK EXPOSURE, EAD AND RWA BY EXPOSURE CLASS AND APPROACH

Counterparty credit risk is broken down as follows:

	31.12.2022								
(In EURm)	IRB			Standard			Total		
Exposure classes	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**
Sovereign	44,698	44,696	235	2,551	2,551	33	47,249	47,247	267
Institutions	18,979	18,994	3,574	31,948	32,019	613	50,927	51,013	4,187
Corporates	55,555	55,543	13,027	2,972	2,901	2,808	58,527	58,444	15,835
Retail	68	68	7	21	21	14	89	89	21
Other	-	-	-	3,514	3,514	688	3,514	3,514	688
TOTAL	**119,300**	**119,300**	**16,842**	**41,006**	**41,006**	**4,155**	**160,306**	**160,306**	**20,998**

	31.12.2021								
(In EURm)	IRB			Standard			Total		
Exposure classes	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**	**Exposure**	**EAD**	**RWA**
Sovereign	24,471	24,511	395	177	177	4	24,648	24,688	399
Institutions	16,653	16,727	3,664	38,068	38,363	960	54,721	55,090	4,624
Corporates	56,698	56,583	14,554	4,441	4,147	4,051	61,139	60,730	18,605
Retail	83	83	8	23	23	14	106	106	21
Other	7	7	2	4,295	4,295	1,022	4,302	4,302	1,023
TOTAL	**97,912**	**97,912**	**18,622**	**47,004**	**47,004**	**6,051**	**144,916**	**144,916**	**24,673**

The tables above feature amounts excluding the CVA (Credit Valuation Adjustment) which represents EUR 2.8 billion of risk-weighted assets (RWA) at 31 December 2022 (*vs.* EUR 2.8 billion at 31 December 2021).

TABLE 73: ANALYSIS OF COUNTERPARTY CREDIT RISK EXPOSURE BY APPROACH (CCR1)

	31.12.2022							
(In EURm)	**Replacement cost (RC)**	**Potential future exposure (PFE)**	**EEPE**	**Alpha used for computing regulatory exposure value**	**Exposure value pre-CRM**	**Exposure value post-CRM**	**Exposure value**	**RWA**
Original Exposure Method (for derivatives)	-	-		1	-	-	-	-
Simplified SA-CCR (for derivatives)	-	-		1	-	-	-	-
SA-CCR (for derivatives)	1,938	35,665		1	92,752	52,644	52,645	6,649
IMM (for derivatives and SFTs)			38,283	2	444,207	63,311	63,348	12,381
of which securities financing transactions netting sets			*18,727*		*370,235*	*29,089*	*29,089*	*2,137*
of which derivatives and long settlement transactions netting sets			*19,493*		*72,565*	*34,113*	*34,151*	*10,239*
of which from contractual cross-product netting sets			*62*		*1,407*	*109*	*109*	*5*
Financial collateral simple method (for SFTs)					-	-	-	-
Financial collateral comprehensive method (for SFTs)					23,324	11,291	11,291	1,050
VaR for SFTs					-	-	-	-
TOTAL					**560,282**	**127,246**	**127,284**	**20,080**

	31.12.2021							
(In EURm)	**Replacement cost (RC)**	**Potential future exposure (PFE)**	**EEPE**	**Alpha used for computing regulatory exposure value**	**Exposure value pre-CRM**	**Exposure value post-CRM**	**Exposure value**	**RWA**
Original Exposure Method (for derivatives)	-	-		1	-	-	-	-
Simplified SA-CCR (for derivatives)	-	-		1	-	-	-	-
SA-CCR (for derivatives)	2,027	20,727		1	67,282	31,808	31,794	9,304
IMM (for derivatives and SFTs)			35,417	2	472,121	62,416	62,322	13,088
of which securities financing transactions netting sets			*16,892*		*395,150*	*28,067*	*28,067*	*2,142*
of which derivatives and long settlement transactions netting sets			*18,453*		*76,847*	*34,217*	*34,123*	*10,946*
of which from contractual cross-product netting sets			*71*		*124*	*132*	*132*	-
Financial collateral simple method (for SFTs)					-	-	-	-
Financial collateral comprehensive method (for SFTs)					27,145	11,245	11,245	994
VaR for SFTs					-	-	-	-
TOTAL					**566,548**	**105,470**	**105,361**	**23,385**

TABLE 74: EXPOSURES TO CENTRAL COUNTERPARTIES (CCR8)

	31.12.2022		31.12.2021	
(In EURm)	**Exposure value**	**RWA**	**Exposure value**	**RWA**
Exposures to QCCPs (total)		918		1,273
Exposures for trades at QCCPs (excluding initial margin and default fund contributions), of which:	7,443	149	7,083	142
(i) OTC derivatives	2,190	44	759	15
(ii) Exchange-traded derivatives	4,025	81	5,866	117
(iii) SFTs	1,022	20	457	9
(iv) Netting sets where cross-product netting has been approved	206	4	-	-
Segregated initial margin	18,063		22,466	
Non-segregated initial margin	4,002	80	5,555	111
Pre-funded default fund contributions	3,199	688	3,992	1,020
Unfunded default fund contributions	-	-	-	-
Exposures to non-QCCPs		-		-
Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions), of which:	-	-	-	-
(i) OTC derivatives	-	-	-	-
(ii) Exchange-traded derivatives	-	-	-	-
(iii) SFTs	-	-	-	-
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	-		-	
Non-segregated initial margin	-	-	-	-
Pre-funded default fund contributions	-	-	-	-
Unfunded default fund contributions	-	-	-	-

TABLE 75: COMPOSITION OF COLLATERAL FOR COUNTERPARTY CREDIT RISK EXPOSURES (CCR5)

	31.12.2022							
	Collateral used in derivative transactions				Collateral used in SFTs			
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received		Fair value of posted collateral	
(In EURm)	Segragated	Un-segragated	Segragated	Un-segragated	Segragated	Un-segragated	Segragated	Un-segragated
Cash – domestic currency	24,446	24,805	12,873	23,346	-	45,204	-	51,338
Cash – other currencies	92,277	42,543	24,813	72,493	-	6,874	-	16,033
Domestic sovereign debt	-	1	-	-	-	196	-	99
Other sovereign debt	20	-	-	-	-	8,763	-	4,446
Government agency debt	15,260	4,684	144	1,796	-	312,749	-	299,469
Corporate bonds	2	132	-	-	-	6,873	-	6,652
Equity securities	690	13	0	37	-	31,642	-	60,190
Other collateral	519	122	-	3	-	19,574	-	20,122
TOTAL	**133,214**	**72,300**	**37,830**	**97,675**	**-**	**431,875**	**-**	**458,348**

	31.12.2021							
	Collateral used in derivative transactions				Collateral used in SFTs			
	Fair value of collateral received		Fair value of posted collateral		Fair value of collateral received		Fair value of posted collateral	
(In EURm)	Segragated	Un-segragated	Segragated	Un-segragated	Segragated	Un-segragated	Segragated	Un-segragated
Cash – domestic currency	26,297	24,408	10,412	24,984	-	28,639	-	35,368
Cash – other currencies	98,096	53,981	44,928	69,676	-	4,483	-	8,383
Domestic sovereign debt	-	-	-	-	-	15	-	1
Other sovereign debt	15	-	-	-	-	4,931	-	6,451
Government agency debt	9,487	2,230	38	1,859	-	229,891	-	207,411
Corporate bonds	8	44	-	-	-	6,493	-	5,157
Equity securities	556	-	0	84	-	2,833	-	17,760
Other collateral	438	113	-	12	-	39,818	-	42,783
TOTAL	**134,897**	**80,777**	**55,378**	**96,616**	**-**	**317,101**	**-**	**323,314**

TABLE 76: TRANSACTIONS SUBJECT TO OWN FUNDS REQUIREMENTS FOR CVA RISK (CCR2)

	31.12.2022		31.12.2021	
(In EURm)	Exposure value	RWA	Exposure value	RWA
Total transactions subject to the Advanced Method	36,947	2,222	33,066	2,218
(i) VaR component (including the 3×multiplier)		*329*		*193*
(ii) Stressed VaR component (including the 3×multiplier)		*1,893*		*2,025*
Transactions subject to the Standardised Method	8,665	582	6,812	589
Transactions subject to the Alternative approach (based on Original Exposure Method)	-	-	-	-
Total transactions subject to own funds requirements for CVA risk	**45,612**	**2,805**	**39,878**	**2,807**

TABLE 77: INTERNAL APPROACH – COUNTERPARTY CREDIT RISK EXPOSURES BY EXPOSURE CLASS AND PD SCALE (CCR4)

The table below presents Group exposures subject to counterparty credit risk and for which an internal model is used with a view to calculating RWA. In accordance with EBA instructions, CVA charges and exposures cleared through CCPs have been excluded.

		31.12.2022						
(In EURm)	**PD scale**	**Exposure value**	**Exposure weighted average PD** *(%)*	**Number of obligors**	**Exposure weighted average LGD** *(%)*	**Exposure weighted average maturity** *(years)*	**RWA**	**RWA density**
Central governments and central banks	0.00 to < 0.15	44,390	0.01%	105	0.76%	1	61	0.14%
	0.15 to < 0.25	-	-	-	-	0	-	-
	0.25 to < 0.50	122	0.26%	9	23.98%	1	35	28.31%
	0.50 to < 0.75	-	-	-	-	-	-	-
	0.75 to < 2.50	110	2.06%	2	19.41%	1	49	44.70%
	2.50 to < 10.00	5	4.22%	9	42.72%	1	5	106.19%
	10.00 to < 100.00	69	17.90%	8	28.34%	0	85	122.92%
	100.00 (default)	-	-	-	-	-	-	-
	Subtotal	**44,696**	**0.04%**	**133**	**0.92%**	**1**	**235**	**0.53%**
Institutions	0.00 to < 0.15	16,561	0.05%	691	33.29%	1	2,001	12.08%
	0.15 to < 0.25	-	-	-	-	-	-	-
	0.25 to < 0.50	933	0.25%	95	37.75%	1	379	40.59%
	0.50 to < 0.75	434	0.49%	77	43.86%	2	364	83.72%
	0.75 to < 2.50	310	1.46%	112	40.88%	2	296	95.51%
	2.50 to < 10.00	620	3.48%	117	25.45%	1	467	75.37%
	10.00 to < 100.00	39	13.14%	62	34.91%	0	67	170.42%
	100.00 (default)	96	100.00%	5	100.00%	2	-	-
	Subtotal	**18,994**	**0.73%**	**1,159**	**33.96%**	**1**	**3,574**	**18.82%**
Corporate	0.00 to < 0.15	43,665	0.06%	4,783	34.69%	1	5,025	11.51%
	0.15 to < 0.25	2	0.17%	12	38.61%	1	0	23.30%
	0.25 to < 0.50	3,003	0.28%	790	30.88%	2	1,033	34.41%
	0.50 to < 0.75	2,295	0.51%	1,002	34.15%	2	1,749	76.21%
	0.75 to < 2.50	3,803	1.58%	1,767	31.60%	2	2,482	65.27%
	2.50 to < 10.00	2,551	4.22%	2,318	31.46%	2	2,357	92.38%
	10.00 to < 100.00	151	14.29%	328	32.12%	2	232	153.53%
	100.00 (default)	72	92.30%	80	50.44%	2	148	206.45%
	Subtotal	**55,543**	**0.54%**	**11,080**	**34.11%**	**1**	**13,027**	**23.45%**
Retail	0.00 to < 0.15	-	-	-	-	-	-	-
	0.15 to < 0.25	-	-	-	-	-	-	-
	0.25 to < 0.50	66	-	955	28.62%	-	6	8.87%
	0.50 to < 0.75	0	-	230	37.50%	-	0	53.05%
	0.75 to < 2.50	-	-	-	-	-	-	-
	2.50 to < 10.00	-	-	-	-	-	-	-
	10.00 to < 100.00	1	-	1	24.00%	-	1	63.71%
	100.00 (default)	-	-	-	-	-	-	-
	Subtotal	**68**	**-**	**1,186**	**28.57%**	**-**	**7**	**9.99%**
TOTAL		**119,300**	**0.38%**	**13,558**	**21.65%**	**1**	**16,842**	**14.12%**

		31.12.2021						
(In EURm)	**PD scale**	**Exposure value**	**Exposure weighted average PD** *(%)*	**Number of obligors**	**Exposure weighted average LGD** *(%)*	**Exposure weighted average maturity** *(years)*	**RWA**	**RWA density**
Central governments and central banks	0.00 to < 0.15	24,235	0.02%	102	2.83%	1	231	0.95%
	0.15 to < 0.25	-		-			-	
	0.25 to < 0.50	73	0.26%	7	27.53%	2	22	29.73%
	0.50 to < 0.75	18	-	1	-	5	-	-
	0.75 to < 2.50	127	2.12%	1	20.00%	1	58	46.07%
	2.50 to < 10.00	24	5.59%	14	31.79%	2	45	187.34%
	10.00 to < 100.00	35	16.13%	7	23.20%	1	39	112.82%
	100.00 (default)	-		-			-	
	Subtotal	**24,511**	**0.06%**	**132**	**3.05%**	**1**	**395**	**1.61%**
Institutions	0.00 to < 0.15	13,501	0.05%	693	34.00%	2	1,936	14.34%
	0.15 to < 0.25	-		-			-	
	0.25 to < 0.50	788	0.26%	101	40.62%	2	386	49.00%
	0.50 to < 0.75	657	0.50%	79	43.09%	2	446	67.88%
	0.75 to < 2.50	1,232	1.97%	109	10.97%	1	304	24.70%
	2.50 to < 10.00	505	3.85%	125	31.09%	1	512	101.29%
	10.00 to < 100.00	44	13.19%	59	33.49%	1	80	180.28%
	100.00 (default)	-		-			-	
	Subtotal	**16,727**	**0.37%**	**1,166**	**32.88%**	**2**	**3,664**	**21.90%**
Corporate	0.00 to < 0.15	41,669	0.05%	4,625	33.99%	1	5,306	12.73%
	0.15 to < 0.25	13	0.20%	28	15.85%	1	1	10.84%
	0.25 to < 0.50	3,408	0.26%	789	28.09%	3	1,097	32.18%
	0.50 to < 0.75	4,234	0.52%	956	29.61%	3	1,823	43.05%
	0.75 to < 2.50	3,816	1.56%	1,657	27.81%	3	2,422	63.49%
	2.50 to < 10.00	2,851	4.13%	1,915	31.37%	2	3,053	107.09%
	10.00 to < 100.00	444	13.70%	364	32.18%	3	696	156.95%
	100.00 (default)	149	100.00%	70	43.30%	3	155	104.10%
	Subtotal	**56,583**	**0.77%**	**10,404**	**32.76%**	**1**	**14,554**	**25.72%**
Retail	0.00 to < 0.15	-		-			-	
	0.15 to < 0.25	10	0.20%	975	11.50%	-	0	4.94%
	0.25 to < 0.50	72	0.27%	82	17.36%	-	6	8.84%
	0.50 to < 0.75	0	0.53%	47	28.75%	-	0	22.64%
	0.75 to < 2.50	-		-			-	
	2.50 to < 10.00	-		-			-	
	10.00 to < 100.00	2	27.25%	1	24.00%	-	1	65.96%
	100.00 (default)	-		-			-	
	Subtotal	**83**	**0.75%**	**1,105**	**16.82%**	**-**	**8**	**9.45%**
TOTAL		**97,905**	**0.52%**	**12,807**	**25.33%**	**1**	**18,620**	**19.02%**

TABLE 78: STANDARDISED APPROACH – COUNTERPARTY CREDIT RISK EXPOSURES BY REGULATORY EXPOSURE CLASS AND RISK WEIGHTS (CCR3)

In accordance with EBA instructions, the amounts are presented without securitisation.

	31.12.2022											
(In EURm)	Risk weight											
Exposure Classes	**0%**	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**	**Total exposure value**
Central governments or central banks	2,529	-	-	-	-	-	-	-	-	22	-	2,551
Regional government or local authorities	-	-	-	-	7	-	-	-	-	-	-	7
Public sector entities	-	-	-	-	80	-	-	-	8	-	0	88
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	18,066	12,707	0	-	835	243	-	-	43	-	30	31,925
Corporates	0	86	-	-	1	22	-	-	2,772	21	0	2,901
Retail	-	-	-	-	-	-	-	21	0	-	0	21
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-
Other items	-	-	-	-	-	-	-	-	-	0	-	0
TOTAL	**20,595**	**12 793**	**0**	**-**	**922**	**266**	**-**	**21**	**2,823**	**43**	**31**	**37,492**

	31.12.2021											
(In EURm)	Risk weight											
Exposure Classes	**0%**	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**	**Total exposure value**
Central governments or central banks	172	-	-	-	-	-	-	-	4	-	-	176
Regional government or local authorities	-	-	-	-	-	-	-	-	-	-	-	-
Public sector entities	-	-	-	-	83	0	-	-	28	-	0	112
Multilateral development banks	-	-	-	-	-	-	-	-	0	-	-	0
International organisations	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	22,466	13,767	0	-	1,485	373	-	-	156	-	4	38,251
Corporates	-	74	-	-	-	40	-	-	4,032	-	1	4,147
Retail	-	-	-	-	-	-	-	23	0	-	0	23
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-
Other items	-	-	-	-	-	-	-	-	-	1	0	1
TOTAL	**22,638**	**13,841**	**0**	**-**	**1,568**	**413**	**-**	**23**	**4,220**	**1**	**5**	**42,710**

TABLE 79: CREDIT DERIVATIVES EXPOSURES (CCR6)

	31.12.2022	
	Credit derivative hedges	
(In EURm)	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	32,105	45,529
Index credit default swaps	21,592	15,343
Total return swaps	6,226	-
Credit options	1,091	740
Other credit derivatives	6,099	3,303
TOTAL NOTIONALS	**67,113**	**64,915**
Fair values		
Positive fair value (asset)	*1,319*	*848*
Negative fair value (liability)	*(991)*	*(741)*

	31.12.2021	
	Credit derivative hedges	
(In EURm)	Protection bought	Protection sold
Notionals		
Single-name credit default swaps	40,954	53,351
Index credit default swaps	27,164	22,736
Total return swaps	3,059	-
Credit options	734	954
Other credit derivatives	10,519	3,326
TOTAL NOTIONALS	**82,429**	**80,366**
Fair values		
Positive fair value (asset)	*374*	*2,105*
Negative fair value (liability)	*(2,100)*	*(420)*

TABLE 80: RWA FLOW STATEMENT OF COUNTERPARTY CREDIT RISK EXPOSURES UNDER THE IMM (CCR7)

IMM is the internal model method applied to calculate exposures to counterparty credit risk. The banking models used are subject to approval of the supervisor.

The application of these internal models has an impact on the method used to calculate the EAD of market transactions but also on the Basel maturity calculation method.

(In EURm)	**RWA**
RWA as at end of previous reporting period (30.09.2022)	**17,226**
Asset size	(829)
Credit quality of counterparties	(36)
Model updates (IMM only)	-
Methodology and policy (IMM only)	-
Acquisitions and disposals	-
Foreign exchange movements	(3,886)
Other	-
RWA as at end of reporting period (31.12.2022)	**12,475**

The table above displays data without CVA (Credit Valuation Adjustment) which amounts to EUR 2.2 billion in advanced method.